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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/561,589	02/14/2007	Peter James Wardle	TS9523US	9298
23632	7590	04/01/2009	EXAMINER	
SHELL OIL COMPANY			MCCAIG, BRIAN A	
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/561,589

**Applicant(s)**

WARDLE ET AL.

**Examiner**

BRIAN MCCAIG

**Art Unit**

1797

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SG/US)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Summary*

1. This is the initial Office action based on the 10/561589 application filed December 20, 2005.
2. Claims 1-18 are pending and have been fully considered.

### *Claim Objections*

3. Claim 5 recites the limitation "prior to the hydrocracking step" in claim 1. There is insufficient antecedent basis for this limitation in the claim.

### *Claim Rejections - 35 USC § 103*

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. **Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over BIXEL ET AL (WO 97/18278) in view of GERMAINE ET AL (WO 02/070630 A1) and GREGOR in Catalysis Letters (1990, vol 7, pgs 317-332), hereafter referred to as BIXEL, GERMAINE, and GREGOR, respectively.**
6. With respect to claim 1, BIXEL discloses a process to prepare a base oil having a target viscosity index of above 80 [age 8, lines 4-6] from a crude derived feedstock by comprising
  - a. contacting a crude derived feedstock in the presence of hydrogen [page 18, lines 2-20] with a catalyst comprising at least one Group VIB metal component and at least one non-noble Group VIII metal component supported on a refractory oxide carrier to produce an effluent [page 16, line 20 to page 17, line 36], and
  - c. dewaxing the effluent [pages 19 to 22].

7. BIXEL does not appear to explicitly disclose adding to the effluent of step (a) (or a part thereof) a Fischer-Tropsch (F-T) derived fraction boiling at least partly in the base oil range, wherein the F-T derived fraction is obtained by hydroisomerization of a F-T synthesis product, in an amount effective to achieve the target viscosity index of the final base oil to produce a mixture.

8. However, GERMAINE, which is concerned with a process to prepare a waxy raffinate from a F-T derived feed, discloses a F-T derived fraction obtained by hydroisomerization of a F-T synthesis product [page 2, line 33 to page 3, line 7] boiling at least partly in the base oil range [page 4, lines 28-29] in an amount effective to achieve the viscosity target index of the final base oil [page 16, lines 3-4 in which the viscosity index is higher than 120].

9. At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the process of BIXEL to include the F-T derived fraction boiling partly in the base oil range since both may be dewaxed using a similar catalytic dewaxing process under similar reaction conditions with similar catalysts [see page 10, line 19 to page 12, line 32 of GERMAINE and page 21, line 25 to page 26, line 30 of BIXEL] and since it is well known to one of ordinary skill in the art that a refinery processing lubricant base oil utilizing both feedstocks can operate more economically since a F-T synthesized product may be hydrocracked (hydroisomerized in GERMAINE) at less than half the pressure, twice the space velocity, and about one-third the hydrogen as hydrocracking a petroleum distillate as evidenced by GREGOR [page 323, paragraph 2 to page 324, paragraph 2] while producing a lubricant base oil with the required viscosity index. Moreover, capital costs for erection of a hydrocracker for a F-T synthesis product is lower than a hydrocracker for a petroleum distillate, and the catalysts for the former are more stable than for the latter as further evidenced by GREGOR.

10. Alternatively, it would have been obvious to one of ordinary skill in the art to modify the process of BIXEL to include the F-T derived fraction boiling partly in the base oil range to provide a base oil with a high viscosity index and also a low pour point [see example 1 of BIXEL and Tables 2 & 3 of GERMAINE].

11. Therefore, the invention as a whole would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made.

12. Finally, BIXEL does not appear to explicitly disclose that the process prepares a base oil with a saturates content of above 90 wt%. However, it is expected that the requirement is inherent in the process of BIXEL since the feedstock and dewaxing process is similar to that of the instant application [page 21, line 25 to page 26, line 30].
13. With respect to claim 2, BIXEL discloses that the crude derived feedstock is a vacuum distillate fraction or a deasphalted vacuum residue [page 7, lines 14-16 & page 8, lines 23-27]
14. With respect to claims 3 and 11, while BIXEL does not appear to explicitly disclose the viscosity index of the crude derived feedstock, it is expected that the required limitation is inherent in the feedstock of BIXEL since it is similar to the crude derived feedstock of the instant application.
15. With respect to claims 4 and 12, while BIXEL does not appear to explicitly disclose the required conversion in step (a), it is expected that conversion is inherent in the hydrocracking step of BIXEL since the reference uses a similar feed, similar reaction conditions [page 18, lines 1-20], and a similar catalyst [e.g., UOP's HC-24 on page 16, line 25 or Criterion's Z-763 on page 17, line 36] as disclosed in the instant application.
16. With respect to claims 5 and 13, BIXEL discloses that the crude derived feed of step (a) is subjected to a hydrotreating step prior to the hydrocracking step [page 12, line 26 to page 13, line 32].
17. With respect to claims 6 and 14, while BIXEL does not appear to explicitly disclose that the required conversion in the hydrotreating step is below 30%. However, it is expected that the requirement is inherent in the process of BIXEL since the reference uses a similar feed, similar reaction conditions, and a similar catalyst as disclosed in the instant application [page 12, line 26 to page 13, line 32].
18. With respect to claims 7 and 15, while BIXEL does not appear to explicitly disclose that the required kinematic viscosity, it is expected that the combination would have the required kinematic viscosity since the hydrocrackate and the F-T boiling fraction of BIXEL and GERMAINE, respectively, are similar to the those streams in the instant application.

19. With respect to claims 8-9 and 16-17, both BIXEL and GERMAINE disclose similar catalytic dewaxing processes followed by similar hydrogenation processes [ page 12, line 18 to page 14, line 3 of GERMAINE & page 19, line 1 to page 28, line 15 of BIXEL].
20. With respect to claims 10 and 18, GERMAINE discloses that the F-T derived fraction is a partly isomerized fraction with a 90 wt% boiling fraction is above 300° C [page 8, lines 6-7]. While GERMAINE does not appear to explicitly disclose the congealing point and wax content, it is expected that the limitations are inherent in the process of GERMAINE since the feed, reactions conditions, and catalyst of the process are similar to that of the instant application [page 4, lines 14-to page 8, line 10].

### ***Conclusion***

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRIAN MCCAIG whose telephone number is (571) 270-5548. The examiner can normally be reached on M-F 8-430.
22. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.
23. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

